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ABSTRACT

This study investigates the relationship between reading comprehension and eleven measures of syntactic writing maturity. The subjects were 144 third, fourth, and fifth grade students of the Travis Elementary School in Sulphur Springs, Texas. The two instruments used to collect data were an in-class composition, which provided a writing sample, and the SRA Assessment Survey Achievement Series, Reading. Results for the total group indicate only slight and low correlations. Upon dividing the groups into grade levels, race, or sex, more relationships were seen. Some data point to a relationship between reading and writing, but the relationship is between the reading scores and words per T-unit measure. The relationship between comprehension as a separate part of reading and writing maturity is not clearly established. Correlations for black students indicate that, as their reading levels rise, blacks tend to add subordinate clauses to their writing. The indicator for rising reading levels of whites was the addition of words in free modification. The means of the writing scores all increased between grade three and grade five, except the Syntactic Density Score, which moved in the wrong direction, had little correlation, and was not a useful tool in this study. (RL)

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A COMPARISON OF SYNTACTIC WRITING MATURITY WITH READING COMPREHENSION

by

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As teachers seek to teach the language skills of reading, writing, speaking, and listening, they frequently find that their knowledge of these subjects is incomplete. They instinctively seek to combine the teaching of these areas, but how these areas are specifically related and therefore how to take advantage of the relationships is not clearly defined.

Focus on the syntactic element, the word order or the ways words are arranged, in the various language areas has occurred since Noam Chomsky's publication of his grammar in 1957. This syntactic element in the reading process has led Goodman (1965) to call reading a psycholinguistic guessing game since from his knowledge of the language, a child makes appropriate guesses about the words he is reading. If a child is familiar with the structure or the syntax of the material he is reading, he will make better guesses and comprehend reading materials better (Ruddell, 1965). William L. Smith's study (1971) showed that children have higher comprehension of passages written at their own syntactic level. With the vocabulary and concept load constant eighth graders read with less comprehension material written in fourth grade syntax than material written in eighth grade syntax.

Prior to Chomsky, the traditional method of evaluating and measuring writing composition had been a rating on quality without regard to syntax. In experimental and standardized situations more than one rater has

judged the compositions, comparing them either to each other or to a model. The National Assessment Exams given in 1969-1970 and testing 88,000 subjects initially used the rating on quality method (National Assessment, 1970). The agency granted this assessment contract was the Educational Testing Service which had traditionally used this method in giving college board exams. In 1972 (National Assessment) additional evaluations of the same tests were released. These included as an addition to the quality rating: error counts, a characterization by judges (as Witty did in 1957), and a computer analysis of various frequency counts. Although counting twenty-four different items, including number of parentheses, no count of T-units was given.

One method of evaluating syntax that developed after Chomsky's introduction of transformational grammar depends on the counting and rating of different kinds of sentence patterns. The Nebraska Study of Children's Writing conducted in 1964-65 (Everetts, 1967) classified compositions according to twelve sentence patterns. Though this was a very complex and complete analysis, no trend was apparent in syntactic growth. Botel, Dawkins, and Granowsky (1973) followed this same path and developed a syntactic complexity formula using sentence patterns which is simpler than the Nebraska method though still quite complex.

Looking for developmental trends in syntax, Kellogg Hunt counted and analyzed the number of words in many kinds of grammatical structures as reported in Grammatical Structures Used at Three Grade Levels (1964). He concluded that five indexes best indicate syntactic development: average clause length (number of words per clause); subordinate clause index (number of clauses per T-unit); average T-unit length (number

of words per T-unit); main clause coordination index (number of T-units per sentence); and average sentence length (number of words per sentence). Several researchers have since used these measures (O'Donnell, 1967; Golub, 1970; Hillerich, 1971; Vitale, 1971; Huntington, 1972; and Veal, 1974) and found growth related to age with these syntactic measures.

Francis Christensen (1968:599) objected to Hunt's measures because he believed that packed noun clauses (which increase the length of a T-unit) turn out jargon. He felt that packing a noun clause did not make a mature style, but that the use of free modifiers resulted in a better style

> Free modifiers, on the other hand, are modifiers not of words but of constructions, from which they are set off by junctures or punctuation. Grammatically, they are loose or additive or nonessential or nonrestrictive. The constructions used are prepositional phrases; relative and subordinate clauses; noun, verb, adjective, and adverbial phrases or clusters; and, one of the most important, verbid clauses or absolutes.

Since these modifiers are free and can appear freely within the sentence, he measured them at the initial, the medial, and final positions. He also used the T-unit measure and advocated a count of intra-T-unit coordination (a compound subject would be an example of intra-T-unit coordination.)

Edward A. Dixon (1972) found that the Hunt T-unit was the best single index for children's writing, that among Christensen's measures free modifiers, all positions, was the best indicator, but that a

combination of these two measures gave an even better index of growth. Taking advantage of this research, Golub (1974) combined these Hunt and Christensen measures, added a few more (such as number of Be and Have forms in the auxiliary), and proposed a Syntactic Density Score with a grade level conversion table. This score includes some of the best indicators of syntactic growth presently known with a weighting of each frequency count.

Some previous studies have compared reading level and compositions. Yamamoto (1963) judged essays on three creative qualities: composite, originality, and interest finding a correlation with the Iowa Every-Pupil Test of Basic Skills significant at less than .001 for 77 pupils in grades three through six. Again using evaluations by judges, this time on McClellan's Effectiveness of Expression of Ideas and Effectiveness of the Organization of Ideas, Woodfin (1968) found significant correlations at the .01 level between these measures and the Gates Advanced Primary Reading Test for 531 third grade children.

A recent study by Evanechko (1974) compared reading as measured by the Bond-Balow-Hoyt New Developmental Reading Test Intermediate Level with syntactic complexity as measured by the Botel formula, which counts sentence patterns, and Loban's Communication Unit. One hundred eighteen sixth grade Canadian children were asked to write on the title "The Last Person on Earth." Higher correlations were found for the comprehension measures than for the vocabulary measures. The best predictor of reading achievement was the number of Communication Units which Evanechko described as "a measure of the fluency of expression in

language in that it is an index of the number of ideas expressed" (p. 324.) This was actually a measure of words written per essay with no time limit indicated. The words per C. U. which would allow for the time element showed a negative correlation.

The purpose of this study was to investigate the relationship between reading comprehension and eleven measures of syntactic writing maturity. These eleven measures were Hunt's: words per T-unit, subordinate clauses per T-unit, mean of the number of words per main clause, and mean of the number of words per subordinate clause; Golub's Syntactic Density Score; and Christensen's instances of free modification per T-unit, words in free modification per T-unit and per instances, instances of intra-T-unit coordination per T-unit, and words in intra-T-unit coordination per T-unit and per instance.

METHOD

Subjects

The subjects were 144 third, fourth, and fifth grade students of the Travis Elementary School in Sulphur Springs, Texas. This neighborhood school is located in a small east Texas city in a low to moderate income area.

Tests and Procedures

Two instruments were used with these subjects. The first test was used to obtain a writing sample. Give to each child as a stimulus for a composition was a black and white, nine-by-twelve picture with attached lined paper on which to write. The direction stated by the experimenter were: "Here is a picture of a dog. Write a story about this picture.

Spell the words the best you can." No suggestions for proofreading were given, and words were not spelled for the children. Thirty minutes of writing time was allowed, and testing was completed by the experimenter in one day.

The next day the teachers of each of the six classes administered the other test, the SRA Assessment Survey Achievement Series, Reading. Form E/Primary II was given to the third and fourth grades; Multi-Level, Form E/Level Blue was given the fifth graders.

The experimenter tabulated the data from the compositions counting a total of sixteen different items in order to compute the eleven measures indicated above. Five papers were eliminated because the child had written only one T-unit. Then with a N of 139 these scores were correlated with the results obtained from the reading tests.

RESULTS

The results of this study for the total group using Guilford's (1950) interpretation of coorelation coefficients indicate only slight (less than.20) and low (.20 to .40) correlations. All correlations above .20 are significant at the .05 level. Out of the thirty-three correlations, thirteen are low and twenty are slight. Low correlations occurred between the three reading scores of comprehension, vocabulary, and total reading and: words per T-unit; mean length of the main clause; mean length of the subordinate clause; and words per instance of free modification.

Upon dividing the groups into grade levels, more relationships were seen. Most of the correlations for grade three and five still remain below .40, but for grade four, two areas show moderate corre-

lations of more than .40: between vocabulary and total reading and words per T-unit and mean length of the main clause.

The scores of the 101 white students indicate six slight correlation and twenty-seven low correlations. Scores of the thirty-eight black students show moderate (more than .40) correlation between the three reading scores and subordinate clauses per T-unit, and between comprehension and mean length of the subordinate clause plus seven other low correlations.

The scores of the fifty-eight female students indicate twenty-six slight correlation with seven low correlation while the scores of the seventy-one males show correlations in the moderate area between the reading scores and words per T-unit with fifteen other low correlations.

DISCUSSION

Some of this data points to a relationship between reading and writing, but the relationship is between the reading scores and Hunt's words per T-unit measure. The relationship between comprehension as a separate part of reading and writing maturity is not clearly established. Of the eight sets of correlation made, six were higher for comprehension, but the difference was usually slight. It is not possible to state from this data that comprehension and syntactic writing maturity are highly correlated. It is possible to say that some of Hunt's measure have low and moderate correlation with the reading scores; so as students write more words per T-unit, their reading level shows some increase.

The correlations for the black students indicate that as blacks add subordinate clauses to their writing, their reading level increases. The indicator for increased reading level of the whites was the addition

of words in free modification. Many of these free modifiers were subordinate clauses; but their use as modifiers of the total sentence not just words, was what indicated growth for the white students rather than their use as subordinate clauses.

The means of the writing scores all increased between grade three and grade five except the Syntactic Density Score. This is in accordance with the findings of Hunt and others and indicates that the writing measurements are measuring syntactic maturity. Some of these differences are significant at the .05 level although most other researchers have seen the need to skip four grade levels to show significance (Hunt, 1963).

The Syntactic Density Score moved in the wrong direction, had little correlation, and was not a useful tool in this study.

Suggestions for further research include: the use of a more sensitive reading test over a wider range of grades. I would also recommend using Hunt's four measures as the writing measure. The difficulty of determining Christensen's free modifiers almost precludes its inclusion though the free modifiers did yield useful information.

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